

# Comments on Day-Ahead Market Enhancements: Fourth Revised Straw Proposal

Department of Market Monitoring

November 18, 2022

The Department of Market Monitoring (DMM) appreciates the opportunity to comment on the *Day-Ahead Market Enhancements: Fourth Revised Straw Proposal*.<sup>1</sup>

## ***The net export constraint will help balancing areas address their own capacity needs in the day-ahead and real-time markets***

In previous comments, DMM has described how the proposed imbalance reserve product and requirements cannot be relied upon to ensure sufficient real-time energy bids within individual EDAM balancing areas.<sup>2</sup> The revised EDAM proposal addresses this issue by allowing each balancing area to set a net export constraint in the EDAM for their area. With the addition of the net export constraint, a balancing area will be able to participate in EDAM while also maintaining the capacity necessary to meet its own reliability needs given inherent uncertainty between the day-ahead and real-time markets. The constraint can be utilized in tight system conditions to prevent a balancing area from having to rely on imbalance reserves within its area or from another EDAM balancing area. This will be critical in tight system conditions because imbalance reserves procured to meet the 97.5% level of uncertainty will not be sufficient to ensure reliability in 2.5% of days under tight system conditions.

## ***Imbalance reserves should be procured based on a demand curve given other proposed changes***

As explained above and in prior DMM comments, procuring imbalance reserve capacity based on a 97.5% confidence level will not ensure there are sufficient real-time bids to meet standard reliability criteria, such as loss of load in 1 day every 10 years. However, with the proposed EDAM net export constraint, balancing areas will not need to rely on imbalance reserves to ensure EDAM energy transfers out of a balancing area do not jeopardize the reliability of that source balancing area. Therefore, setting the imbalance reserve up requirements at a level sufficiently above 97.5% to meet standard reliability criteria is not necessary as part of the DAME or EDAM design.

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<sup>1</sup> *Day-Ahead Market Enhancements: Fourth Revised Straw Proposal*, California ISO, October 26, 2022: <http://www.caiso.com/InitiativeDocuments/FourthRevisedStrawProposal-Day-AheadMarketEnhancements.pdf>

<sup>2</sup> For example see *Comments on Day-Ahead Market Enhancements: Third Revised Straw Proposal*, Department of Market Monitoring, May 19, 2022, pp. 5-6: <http://www.caiso.com/Documents/DMM-Comments-Day-Ahead-Market-Enhancements-3rd-Revised-Straw-Proposal-May-20-2022.pdf>

Rather, DMM recommends that imbalance reserves be procured in the day-ahead market based on a demand curve, allowing the market to make tradeoffs between the cost of procuring reserves and an estimated value of those reserves. A demand curve would allow the market to economically incorporate flexibility. A demand curve would also allow energy prices in the day-ahead market to rise as capacity becomes scarcer rather than energy prices rising in large, discontinuous price increases. Finally, a demand curve would help mitigate potential market power for imbalance reserve and reliability capacity up products stemming from locational and transmission constraints incorporated in the day-ahead market.

### ***Local market power mitigation is an important component of the proposal***

The imbalance reserve and reliability capacity up products established as part of the day-ahead market enhancements would be locationally and transmission constrained. As a result, local market power could clearly exist for these products. Imbalance reserve bids could be used to exercise market power not only for reserves but also for energy. Therefore, local market power tests and mitigation are an important component of the proposal.

The ISO proposes to establish a uniform default capacity floor calculated using historical ancillary service or imbalance reserve up prices. Although additional details need to be developed, DMM believes this is a reasonable approach.

However, as described in the following section, DMM is concerned about the interaction between the proposed default capacity offer and the real-time energy bid cap that is proposed for capacity reserves procured in the day-ahead market. Given the potential for local market power for imbalance reserve and reliability capacity up products, DMM views the capacity offer mitigation as an essential component of the proposal. At the same time, DMM is concerned that the proposed real-time energy bid cap may be relatively ineffective; provide limited benefits; and could even have some unforeseen adverse impacts, as explained below.

### ***Real-time energy bid price cap***

The CAISO proposes capping the real-time energy bids for resources that receive imbalance reserve up or reliability capacity up awards. The energy bid cap would be set based on some projection of what energy prices would be if load was to equal the forecast plus the full imbalance reserve requirement.<sup>3</sup> This energy bid cap appears to be intended to get resources with lower marginal energy costs to submit lower capacity offer prices than resources with higher marginal energy costs. The plan being that market would select the set of resources with the lowest marginal energy costs and bids, among capacity not awarded energy schedules, to provide reserve up or reliability capacity.

With this approach, resources with expected marginal energy costs lower than this energy bid cap would presumably have an incentive to submit relatively low priced capacity bids for providing reserve up or reliability capacity. Meanwhile, resources with expected marginal energy costs higher than this energy bid cap would presumably have an incentive to submit

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<sup>3</sup> As discussed on p.53 of the *Fourth Revised Straw Proposal*.

higher priced capacity bids for providing reserve up or reliability capacity. Presumably, these higher cost resources would incorporate the probabilistic risk of being required to generate energy at a loss in the real-time market into their bid for day-ahead imbalance reserve up capacity.

For resources whose costs are significantly below the cap, and are very unlikely to have their costs increase above the cap in real-time, the offer prices may do little or nothing to differentiate between resources with different energy costs. For example, consider a situation in which the energy bid cap is \$100/MW, and two resources have energy costs of \$20/MW and \$50/MWh, respectively. It may be so unlikely that either of their costs rise above \$100/MW in real-time that the cost of this risk to both resources is near \$0. If they both offer imbalance reserves at or near \$0, the market will not be able to differentiate between the two potential dispatch costs.

Alternatively, consider a resource whose energy costs are significantly above the bid cap. If a resource has energy costs of \$150/MW but the cap is \$100/MW, then the resource's cost to providing capacity would be \$50 multiplied the probability the CAISO dispatches the resource for real-time energy. This probabilistic cost could be above the uniform default capacity price cap calculated using historical ancillary service or imbalance reserve up prices. Therefore, the energy bid cap included in the current proposal could lead to CAISO mitigating resource imbalance reserve up offers below the probabilistic costs of providing capacity reserves.

DMM agrees that seeking a way to incorporate potential real-time energy bid prices into reserve procurement is worthwhile – and fully appreciates the difficulty of developing an effective and implemental approach for accomplishing this. DMM previously suggested that the CAISO investigate ways to incorporate potential real-time energy dispatch costs into imbalance reserve procurement.<sup>4</sup> However, designing an effective mechanism to incorporate potential dispatch costs into reserve procurement would be time consuming and will further delay the development of imbalance reserves.

Consequently, DMM thinks the CAISO should consider moving DAME forward without incorporating potential real-time energy dispatch costs into reserve procurement for now. Imbalance reserve procurement would still incorporate more flexibility into the day-ahead market and allow energy prices to rise as available capacity falls. Therefore, DMM believes that imbalance reserves designed with an appropriate demand curve in place of the current proposal's large fixed requirement would provide some benefit for the day-ahead market, even without consideration of potential real-time energy dispatch costs.

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<sup>4</sup> *Comments on Day-Ahead Market Enhancements: Second Revised Straw Proposal*, Department of Market Monitoring, August 18, 2021: <http://www.caiso.com/Documents/DMM-Comments-on-Day-Ahead-Market-Enhancements-Revised-Straw-Proposal-Aug-18-2021.pdf>

***The Imbalance reserve product definition would change with adjustable parameter***

The CAISO proposes to make the period over which imbalance reserves must be deliverable an adjustable parameter. However, this parameter is fundamental to what the product is. For example, spinning reserves must be deliverable within 10 minutes — making them a 10-minute product. Without knowing whether imbalance reserves are 15-minute, 30-minute, 60-minute, or some other duration, one cannot know what the product actually is. The CAISO also does not explain how, and with what criteria, it will determine when adjustments would be made.

As DMM explained in previous comments, much of the day-ahead uncertainty is resolved before the start of the trade hour. The uncertainty does not all materialize in 15-minutes.<sup>5</sup> Therefore, DMM believes the CAISO should procure a significant portion of imbalance reserve requirements as hourly reserves. The CAISO should procure a subset of reserves, such as the fifteen-minute market flexible ramping product requirement, as 15-minute reserves.

***Imbalance reserve demand should be settled at the locational prices of the locations where imbalance reserves are modeled as being withdrawn***

The CAISO proposes to pay imbalance reserve suppliers at local prices, but to not allocate imbalance reserve costs to load at local prices. Instead, the CAISO will calculate total payments to imbalance reserve suppliers, and will allocate those payments to the drivers of imbalance demand. The result is that the ISO will not collect congestion rent from imbalance reserves.

DMM recommends that the CAISO settle imbalance reserves at the withdrawal node prices. Not doing so is analogous to settling load at the generation prices rather than the load prices. The CAISO could still calculate the allocation shares the same as it now proposes, consistent with its cost causation principles, but apply the shares to the total cost calculated at the withdrawal nodes.

***The real-time market needs to be able to hold and access reserves procured in day-ahead market.***

As discussed in previous comments, the real-time market should have mechanisms to efficiently determine whether or not to hold onto flexible reserves that were procured in the day-ahead market. If the real-time market does not have a mechanism to maintain these reserves, the value of procuring them in the day-ahead market could be significantly reduced.<sup>6</sup>

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<sup>5</sup> DMM Comments on Day-Ahead Market Enhancements Second Revised Straw Proposal, August 18, 2021, pp. 4-5

<sup>6</sup> DMM Comments on Day-Ahead Market Enhancements Second Revised Straw Proposal, August 18, 2021, pp. 1-2